

Set Name Query
side by side*DB=JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ*L6 l4 and (terminal group or end group or telechelic)L5 L4 and acryloylL4 nakagawa-yoshiki\$.in.L3 06329720*DB=USPT,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ*L2 ((end functional or telechelic or teminal) with acryloyl)L1 ((end functional or telechelic or teminal) with acryloyl)**Hit Count Set Name**
result set1 L62 L5305 L42 L319 L219 L1

END OF SEARCH HISTORY

Set Name Query
side by side

Hit Count Set Name
result set

DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ

<u>L9</u>	(photocur\$ composition) same (terminal group or end group or telechelic)	12	<u>L9</u>
<u>L8</u>	L7	2	<u>L8</u>
<u>L7</u>	(telechelic or end functional or terminal group)with polymer\$ with cur\$ with photo\$	2	<u>L7</u>

DB=USPT; PLUR=YES; OP=ADJ

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<u>L5</u>	L4 and photo\$	0	<u>L5</u>
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<u>L3</u>	l1 and photo\$	0	<u>L3</u>
<u>L2</u>	L1 and cur\$	0	<u>L2</u>
<u>L1</u>	5807937.pn.	1	<u>L1</u>

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Term	Documents
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TERMINALS.DWPI,EPAB,JPAB.	244204
GROUP.DWPI,EPAB,JPAB.	773978
GP.DWPI,EPAB,JPAB.	264212
GROUPS.DWPI,EPAB,JPAB.	285168
END.DWPI,EPAB,JPAB.	2534701
ENDS.DWPI,EPAB,JPAB.	818687
TELECHELIC.DWPI,EPAB,JPAB.	470
TELECHELICS.DWPI,EPAB,JPAB.	9
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(L4 AND (TERMINAL GROUP OR END GROUP OR TELECHELIC)).JPAB,EPAB,DWPI.	1

Database:

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L6

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5381735
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L1: Entry 15 of 19

File: USPT

Sep 7, 1993

US-PAT-NO: 5242983

DOCUMENT-IDENTIFIER: US 5242983 A

TITLE: Polyisobutylene toughened poly(methyl methacrylate)

DATE-ISSUED: September 7, 1993

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kennedy; Joseph P.	Akron	OH		
Richard; Gretchen C.	Akron	OH		
Askew; Michael J.	Akron	OH		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Edison Polymer Innovation Corporation					02

APPL-NO: 7/ 854421 [PALM]

DATE FILED: March 19, 1992

INT-CL: [5] C08F 255/10, C08L 33/12, A61F 2/28

US-CL-ISSUED: 525/309; 525/227, 525/319, 525/903, 526/329, 526/348.7, 623/16

US-CL-CURRENT: 525/309; 525/27, 525/319, 525/903, 526/329, 526/348.7, 623/23.62

FIELD-OF-SEARCH: 525/227, 525/309, 525/319, 525/903, 526/329, 526/348.7

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>3944631</u>	March 1976	Yu et al.	260/881
<input type="checkbox"/>	<u>4085168</u>	April 1978	Milkovich et al.	260/886
<input type="checkbox"/>	<u>4123409</u>	October 1978	Kaelble	260/29.1SB
<input type="checkbox"/>	<u>4276394</u>	June 1981	Kennedy et al.	525/245
<input type="checkbox"/>	<u>4287317</u>	September 1981	Kitagawa et al.	525/309
<input type="checkbox"/>	<u>4316973</u>	February 1982	Kennedy	525/335
<input type="checkbox"/>	<u>4442261</u>	April 1984	Kennedy et al.	525/324
<input type="checkbox"/>	<u>4486572</u>	December 1984	Kennedy	525/283
<input type="checkbox"/>	<u>4524188</u>	June 1985	Kennedy et al.	525/333.7
<input type="checkbox"/>	<u>4711913</u>	December 1987	Tateosian et al.	522/14
<input type="checkbox"/>	<u>4829127</u>	May 1989	Muramoto et al.	525/902
<input type="checkbox"/>	<u>4837279</u>	June 1989	Arroyo	525/193
<input type="checkbox"/>	<u>4863977</u>	September 1989	Tateosian et al.	522/14
<input type="checkbox"/>	<u>4942204</u>	July 1990	Kennedy	525/293
<input type="checkbox"/>	<u>4994523</u>	February 1991	Sasaki et al.	525/63
<input type="checkbox"/>	<u>5066730</u>	November 1991	Kennedy et al.	525/319

OTHER PUBLICATIONS

"Living Carbocationic Polymerization. IV. Living Polymerization of Isobutylene", R. Faust et al., Journal of Polymer Science: Part A: Polymer Chemistry, vol. 25, 1847-1869 (1987).

"Living Carbocationic Polymerization XIV. Living Polymerization of Isobutylene with Ester. $TiCl_4$ Complexes", G. Kaszas et al., Makromolecular Chem., Macromol. Symp., 13/14, 473-493 (1988).

"New Telechelic Polymers and Sequential Copolymers by Polyfunctional Initiator-Transfer Agents (Inifers) V. Synthesis of α -tert-Butyl- ω -isopropenylpolyisobutylene and α , ω -Di(isopropenyl)polyisobutylene", J. Kennedy et al., Polymer Bulletin, 1, 575-580 (1979).

"New Telechelic Polymers and Sequential Copolymers by Polyfunctional Initiator-Transfer Agents (Inifers). VII. Synthesis and Characterization of α , ω -Di(hydroxy)polyisobutylene", B. Ivan et al., Journal of Polymer Science: Polymer Chemistry Edition, vol. 18, 3177-3191 (1980).

"Macromers by Carbocationic Polymerization. IV. Synthesis and Characterization of Polyisobutenyl Methacrylate Macromer and Its Homopolymerization and Copolymerization with Methyl Methacrylate", J. Kennedy et al., Journal of Polymer Science: Polymer Chemistry Edition, vol. 21, 1033-1044 (1983).

"Living Carbocationic Polymerization IX. Three-Arm Star Telechelic Polyisobutylenes by $C_6H_3(C(CH_3)_2OCH_2)_3/BCl_3$ Complexes", M. Mishra et al., Polymer Bulletin, 17, 307-314 (1987).

ART-UNIT: 152

PRIMARY-EXAMINER: Jagannathan; Vasu S.

ATTY-AGENT-FIRM: Weisz; Louis J.

ABSTRACT:

A bone cement is prepared by synthesizing a polymeric composition comprising poly(methyl methacrylate) cross-linked by copolymerization with tris(ω -methacryloyl) polyisobutylene. A powder is formed from the composition, and the final cement is prepared by mixing the powder with additional methyl methacrylate in the presence of a catalyst to form a dough-like material that is polymerized in situ to yield a cement useful for orthopedic purposes. Preferred

embodiments employ tris(.omega.-methacryloyl) compounds within a particular molecular weight range, and which are present in the powder in particular amounts relative to the poly(methyl methacrylate) component therein.

5 Claims, 4 Drawing figures

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L1: Entry 15 of 19

File: USPT

Sep 7, 1993

DOCUMENT-IDENTIFIER: US 5242983 A

TITLE: Polyisobutylene toughened poly(methyl methacrylate)

Brief Summary Paragraph Right (12):

The preceding and other aspects of the invention are provided by a composition comprising poly(methyl methacrylate) partially cross-linked with a telechelic compound consisting of tris(.omega.-acryloyl) polyisobutylene.

Detailed Description Paragraph Right (6):

The presence of the rubber portion in the acryloyl telechelic polyisobutylenes provides a mechanism which allows energy-dissipation in the form of crazing and shear yielding to occur, thereby providing the toughening effect achieved. To provide such results, however, and as previously indicated, it is necessary that the acryloyl telechelic polyisobutylenes be uniformly distributed throughout the reaction mixture during formation of the copolymer, and that the uniform microdomain morphology be preserved. In order to assure this, it has been found desirable to conduct the reaction in two steps. During the first of these, the acryloyl telechelic polyisobutylene and the methyl methacrylate are combined in a solvent and stirred during an initial polymerization until the reaction mixture begins to gel; at such point the reacting components have become immobilized. Thereafter, in a second step, stirring can be discontinued and polymerization continued to provide the desired solid product. When thus formed, the interpenetrating networks provide good interfacial strengths as between the tris(.omega.-methacryloyl)polyisobutylene and the poly(methyl methacrylate), due to the uniformly distributed PIB--(MA).sub.3, and to the three points of attachment to the poly(methyl methacrylate) matrix provided by the three reactive arms.

Detailed Description Paragraph Right (7):

With respect to the preparation of the cross-linked PMMAs of the invention, and as will be shown in the following in connection with the discussion of physical properties, it has been found that the molecular weight of the methacryloyl telechelic polyisobutylenes should be controlled within particular limits if optimal physical properties of the cross-linked copolymer are to be realized. As might be expected, as the molecular weight increases, providing longer polyisobutylene chains, toughness of the cross-linked poly(methyl methacrylate) increases. Surprisingly, however, it has been found that when the molecular weight increases beyond a certain point, inferior products with decreased toughness are produced. In regard to the foregoing, it has been determined that the molecular weight of the acryloyl telechelic polyisobutylenes should be controlled between about 6,000 to about 25,000 grams per gram mole, and a control range of from about 15,000 to about 20,000 grams per gram mole has been found to provide superior results.

Detailed Description Paragraph Right (8):

In addition, and in order to realize the benefits of molecular weights controlled within the range shown, it is necessary that the molecular weight distribution of the acryloyl telechelic polyisobutylene, be maintained within a uniform range. In this regard, it has been found, for example, that the ratio of weight average molecular weight to number average molecular weight, $M_{sub.w}/M_{sub.n}$, of such compounds have a maximum value of about 1.5. In a preferred embodiment, the molecular weight distribution will, however, be maintained so that such ratio comprises a value no greater than between about 1.2 to about 1.3.

Detailed Description Paragraph Right (10):

As mentioned in the preceding, the acryloyl telechelic polyisobutylene is not soluble in methyl methacrylate; consequently, both must be dissolved in a mutual solvent in

order to achieve the desired reaction. While tetrahydrofuran, THF, has been found to be admirably suited for the purpose since it has a desirably low boiling point and presents minimal processing and ecological problems, any solvent capable of dissolving both components is satisfactory for the purposes of the invention.

Detailed Description Paragraph Right (11):

As in the case of the molecular weight of the acryloyl telechelic polyisobutylenes, it has also been found that the amount of such material in the cross-linked copolymer affects the physical properties of the copolymer. In this regard, it has been determined to be desirable to provide compositions in which the concentration of acryloyl telechelic polyisobutylene constitutes from about 5 to about 30 weight percent of the cross-linked copolymer. However, a more preferable range has been found to be from about 15 to about 20 weight percent. In general, the lower the amount of the acryloyl telechelic polyisobutylene present, the easier it is to mix the copolymer with still further methyl methacrylate in preparing the final bone cement.

Detailed Description Paragraph Right (12):

The effects of molecular weight and of concentration on physical properties discussed above are confirmed in TABLE 1 below, in which the first number in the sample indicates the molecular weight of the acryloyl telechelic polyisobutylene, for example, 6K represents such a compound having a molecular weight of 6000 g/mole. The last number indicates the concentration (wt %) of the acryloyl telechelic polyisobutylene in the cross-linked poly(methyl methacrylate) copolymer.

Detailed Description Paragraph Right (15):

While not wishing to be bound by the theory, it is apparent that even 5 weight percent of the methacryloyl telechelic polyisobutylene is sufficient to result in an increase in toughness. However, apparently at some point exceeding a concentration of 20% of the acryloyl telechelic polyisobutylene, the most effective toughening of the cross-linked material has been crossed. The decrease in tensile properties suggests that this may happen when a semi-continuous acryloyl telechelic polyisobutylene phase exists, i.e., where the rubbery domains are interconnected. Such a morphology would probably not result in effective rubber roughening.

Detailed Description Paragraph Right (17):

Mixing of the powder with the liquid component normally can be accomplished in from about 45 seconds to about 2 minutes, mixing being continued until the composition can be readily handled and manipulated into the areas where it is required. The ratio of powder to liquid required to produce a workable "dough" will depend upon a variety of factors, including the particle size of the powdered, cross-linked copolymer, as well as the amount of acryloyl telechelic polyisobutylene contained therein. Optimum ratios in a given system are readily determined by experimentation; however, it has been found that powder-to-liquid ratios from about 1.3/1 to about 2/1 normally provide satisfactory results.

CLAIMS:

1. A polymeric composition comprising poly(methyl methacrylate) cross-linked with a telechelic compound having a number average molecular weight from about 6,000 to about 25,000, and a maximum molecular weight distribution of about 1.5, selected from the group consisting of tris(.omega.-acryloyl) polyisobutylene and tris(.omega.-methacryloyl) polyisobutylene.

WEST**Freeform Search****Database:**

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Term:

(photocur\$ composition) same (terminal group or
end group or telechelic)

Display: **Documents in Display Format:** **Starting with Number** **Generate:** ☐ Hit List ☒ Hit Count ☐ Side by Side ☐ Image**Search****Clear****Help****Logout****Interrupt****Main Menu****Show S Numbers****Edit S Numbers****Preferences****Cases****Search History****DATE:** Thursday, March 21, 2002 [Printable Copy](#) [Create Case](#)

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L1: Entry 12 of 19

File: USPT

Jun 28, 1994

US-PAT-NO: 5324519

DOCUMENT-IDENTIFIER: US 5324519 A

TITLE: Biodegradable polymer composition

DATE-ISSUED: June 28, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dunn; Richard L.	Fort Collins	CO		
Tipton; Arthur J.	Fort Collins	CO		
Southard; George L.	Fort Collins	CO		
Rogers; Jack A.	Fort Collins	CO		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Atrix Laboratories, Inc.	Fort Collins	CO			02

APPL-NO: 7/ 783512 [PALM]

DATE FILED: October 28, 1991

PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATIONS This patent application is a continuation-in-part of U.S. patent application Ser. No. 384,416, filed Jul. 24, 1989, now U.S. Pat. No. 5,077,049.

INT-CL: [5] A61F 2/00

US-CL-ISSUED: 424/426; 424/422, 424/423, 424/424, 424/425, 424/486

US-CL-CURRENT: 424/426; 424/422, 424/423, 424/424, 424/425, 424/486

FIELD-OF-SEARCH: 424/426, 424/422, 424/423, 424/424, 424/425, 424/486, 433/201.1, 525/415

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

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<input type="checkbox"/>	<u>4961707</u>	October 1990	Magnusson et al.	424/424

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
2223027	August 1989	GBX	

OTHER PUBLICATIONS

K. Juni et al., Control of Release Rate of Bleomycin from Polyactic Acid Microspheres by Additives, Chem. Pharm. Bull., 33(4), 1609-1614 (1985).

ART-UNIT: 152

PRIMARY-EXAMINER: Page; Thurman K.
ASSISTANT-EXAMINER: Spear; James M.
ATTY-AGENT-FIRM: Merchant, Gould, Smith, Edell, Welter & Schmidt

ABSTRACT:

The invention is directed to a composition composed of a thermoplastic or thermosetting polymer which is capable of forming a biodegradable and/or bioerodible microporous, solid or gelatinous polymer matrix. The matrix is useful as an implant in animals for enhancing regeneration of cells and tissue, such as bone and nerve cells, or for delivery of biologically-active substances to tissue or organs. The composition is administered to an implant site as a liquid. The invention also includes a method of preventing and treating disorders and diseases, such as bone or nerve growth disorders, or of altering body functions such as birth control, using the compositions and implants of the invention.

26 Claims, 0 Drawing figures

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L1: Entry 12 of 19

File: USPT

Jun 28, 1994

DOCUMENT-IDENTIFIER: US 5324519 A

TITLE: Biodegradable polymer composition

Brief Summary Paragraph Right (25):

The pre-polymers are preferably low molecular weight polymers or oligomers having end functional groups that are reactive with acryloyl chloride to produce acrylic ester-terminated pre-polymers. Acrylic pre-polymers for use in the compositions may be synthesized according to a variety of methods including, but not limited to, reaction of a carboxylic acid, such as acrylic or methacrylic acid, with an alcohol; reaction of a carboxylic acid ester, such as methyl acrylate or methyl methacrylate, with an alcohol by transesterification; and reaction of an isocyanatoalkyl acrylate, such as isocyanatoethyl methacrylate, with an alcohol.

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L1: Entry 5 of 19

File: USPT

Feb 4, 1997

US-PAT-NO: 5599552

DOCUMENT-IDENTIFIER: US 5599552 A

TITLE: Biodegradable polymer composition

DATE-ISSUED: February 4, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dunn; Richard L.	Fort Collins	CO		
Tipton; Arthur J.	Fort Collins	CO		
Southard; George L.	Fort Collins	CO		
Rogers; Jack A.	Fort Collins	CO		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Atrix Laboratories, Inc.	Fort Collins	CO			02

APPL-NO: 8/ 249630 [PALM]

DATE FILED: May 26, 1994

PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATIONS This patent application is a division of U.S. patent application Ser. No. 07/783,512, filed Oct. 28, 1991, now U.S. Pat. No. 5,324,519 (issued Jun. 28, 1994), which is a continuation-in-part of U.S. patent application Ser. No. 384,416, filed Jul. 24, 1989, now U.S. Pat. No. 5,077,049 (issued Dec. 31, 1991), which applications are incorporated herein by reference.

INT-CL: [6] A61 F 2/00

US-CL-ISSUED: 424/423; 424/424, 424/425, 424/426, 424/422, 424/428, 424/486

US-CL-CURRENT: 424/423; 424/422, 424/424, 424/425, 424/426, 424/428, 424/486

FIELD-OF-SEARCH: 424/423, 424/4, 424/426, 424/422, 424/425, 424/486, 424/428

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

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FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0171173	February 1986	EPX	
0271831	June 1988	EPX	
0297535	January 1989	EPX	
0430474	June 1991	EPX	
263585	March 1990	FRX	
2223027	August 1989	GBX	
89/01006	February 1989	WOX	

OTHER PUBLICATIONS

K. Juni et al., Control of Release of Bleomycin from Polyactic Acid Microspheres by Additives, Chem. Pharm. Bull. 33(4) 1609-1614 (1985).

ART-UNIT: 152

PRIMARY-EXAMINER: Spear; James M.

ATTY-AGENT-FIRM: Merchant, Gould, Smith, Edell, Welter, & Schmidt, P.A.

ABSTRACT:

The invention is directed to a composition composed of a thermoplastic or thermosetting polymer which is capable of forming a biodegradable and/or bioerodible microporous, solid or gelatinous polymer matrix. The matrix is useful as an implant in animals for enhancing regeneration of cells and tissue, such as bone and nerve cells, or for delivery of biologically-active substances to tissue or organs. The composition is administered to an implant site as a liquid. The invention also includes a method of preventing and treating disorders and diseases, such as bone or nerve growth disorders, or of altering body functions such as birth control, using the compositions and implants of the invention.

26 Claims, 0 Drawing figures

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L1: Entry 5 of 19

File: USPT

Feb 4, 1997

DOCUMENT-IDENTIFIER: US 5599552 A

TITLE: Biodegradable polymer composition

Brief Summary Paragraph Right (25):

The pre-polymers are preferably low molecular weight polymers or oligomers having end functional groups that are reactive with acryloyl chloride to produce acrylic ester-terminated pre-polymers. Acrylic pre-polymers for use in the compositions may be synthesized according to a variety of methods including, but not limited to, reaction of a carboxylic acid, such as acrylic or methacrylic acid, with an alcohol; reaction of a carboxylic acid ester, such as methyl acrylate or methyl methacrylate, with an alcohol by transesterification; and reaction of an isocyanatoalkyl acrylate, such as isocyanatoethyl methacrylate, with an alcohol.

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L1: Entry 4 of 19

File: USPT

Feb 18, 1997

US-PAT-NO: 5604268

DOCUMENT-IDENTIFIER: US 5604268 A

TITLE: Glue crayons

DATE-ISSUED: February 18, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Randen; Neil A.	Washington	MN		
Frank; John W.	Washington	MN		
Hager; Patrick J.	Washington	MN		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE	CODE
Minnesota Mining and Manufacturing Company	St. Paul	MN				02

APPL-NO: 8/ 394653 [PALM]

DATE FILED: February 22, 1995

INT-CL: [6] C09 D 13/00, C08 L 33/06, C08 L 67/07

US-CL-ISSUED: 523/164; 526/282, 526/317.1, 526/318.4, 526/325

US-CL-CURRENT: 523/164; 526/282, 526/317.1, 526/318.4, 526/325

FIELD-OF-SEARCH: 526/375, 526/318.4, 523/164

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>2913355</u>	November 1959	Collins	
<input type="checkbox"/>	<u>3539481</u>	November 1970	Parker	
<input type="checkbox"/>	<u>3576776</u>	April 1971	Muszik et al.	
<input type="checkbox"/>	<u>3900674</u>	August 1975	Coffman	428/355
<input type="checkbox"/>	<u>3929694</u>	December 1975	Columbus	
<input type="checkbox"/>	<u>4066600</u>	January 1978	Fletcher et al.	
<input type="checkbox"/>	<u>4299741</u>	November 1981	Doehnert	
<input type="checkbox"/>	<u>4912169</u>	February 1990	Whitmire	525/221
<input type="checkbox"/>	<u>5284690</u>	February 1994	Williams	428/40
<input type="checkbox"/>	<u>5331023</u>	July 1994	Columbus	523/164
<input type="checkbox"/>	<u>5393608</u>	February 1995	Chao	428/352

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0340440A2	November 1989	EPX	
0562192A1	September 1993	EPX	

ART-UNIT: 155

PRIMARY-EXAMINER: Zitomer; Fred

ATTY-AGENT-FIRM: Griswold; Gary L. Kirn; Walter N. Peters; Carolyn V.

ABSTRACT:

The glue crayons comprising acrylate polymers, tackified acrylate polymers, acrylate polymers containing specific, pendent, macromeric units, acrylate polymers containing high chain length alkyl (meth)acrylate monomers, acrylate polymers containing both macromeric and high chain length alkyl groups and acrylate polymers containing crystalline additives and includes (a) an acrylate-based adhesive polymer, (b) a tackifier; (c) a crystalline additive; and (d) at least one filler.

10 Claims, 0 Drawing figures

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L1: Entry 4 of 19

File: USPT

Feb 18, 1997

DOCUMENT-IDENTIFIER: US 5604268 A

TITLE: Glue crayons

Detailed Description Paragraph Right (19):

The general procedure for preparing the macromers used in this invention consisted of first making the hydroxy-terminated telechelic prepolymers, listed in Table 3, and then the latter were functionalized using acryloyl chloride (ACI), methacryloyl chloride (MACl), 2'-isocyanatoethyl methacrylate (IEM), 3-isopropenyl-alpha, alpha-dimethylbenzyl isocyanate (IPDMBI) and the like. In addition, because of the free radical approach used to make these telechelic prepolymers, a homopolymer as well as the hydroxy-terminated telechelic prepolymers was generated.

Detailed Description Paragraph Right (22):

The hydroxy-terminated telechelic polymers were functionalized by reaction with acryloyl chloride (ACl), methacryloyl chloride (MACl), 2'-isocyanatoethyl methacrylate (IEM), 3-isopropenyl-alpha, alpha-dimethylbenzyl isocyanate (IPDMBI) and the like as demonstrated by the following examples.

Detailed Description Paragraph Right (23):

Example 33 demonstrated the preparation of an ODA.about.11,000 macromer from its corresponding ODA hydroxy-terminated telechelic prepolymer with a calculated molecular weight of approximately 11,000 and acryloyl chloride. Triethyl amine (2.00 g) was added to 380.00 g of the hydroxyl terminated octadecyl acrylate telechelic prepolymer (Example 23a) with stirring at room temperature. The mixture was heated to 28.degree. C. to help dissolve the latter. When the solution was clear, the heat was turned off and 1.72 g of acryloyl chloride was added dropwise. A precipitate formed immediately and a slight exotherm to 41.degree. C. followed. The reaction mixture was stirred for three hours, then heated to 45.degree. C. for one hour and cooled to room temperature. The solution was extracted with 100, 50 and 50 ml aliquots of distilled water, then dried over anhydrous magnesium sulfate and filtered to yield the final ODA.about.11,000 macromer.

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L1: Entry 18 of 19

File: JPAB

Sep 5, 1987

PUB-NO: JP362201983A
DOCUMENT-IDENTIFIER: JP 62201983 A
TITLE: EPOXY RESIN ADHESIVE COMPOSITION

PUBN-DATE: September 5, 1987

INVENTOR-INFORMATION:

NAME

COUNTRY

YANAGISAWA, SEIICHI

ISHIDA, SHIGERU

ASSIGNEE-INFORMATION:

NAME

COUNTRY

YOKOHAMA RUBBER CO LTD:THE

APPL-NO: JP61042880

APPL-DATE: February 28, 1986

US-CL-CURRENT: 523/429

INT-CL (IPC): C09J 3/16

ABSTRACT:

PURPOSE: To obtain the titled adhesive composition which has excellent adhesiveness to a thermosetting resin coating and is liquid, by mixing a specified oligomer containing ethylene oxide groups and a liquid telechelic diene rubber.

CONSTITUTION: 100pts.wt. oligomer containing two or more ethylene oxide groups in a molecule (A) (e.g., a bisphenol-glycidyl ether epoxy resin) is mixed with 10~50pts.wt. liquid telechelic diene rubber (B) which has terminal functional groups such as hydroxyl, carboxyl, isocyanate, ethylene oxide, or acryloyl groups, has a molecular weight of 1,000~20,000, and is liquid at ordinary temperatures, and if necessary, a filler (e.g., a silica powder), a latent curing agent (e.g., dicyandiamide), an anti-sagging agent (e.g., asbestos), etc. to give the titled composition. This composition is applied in the interspaces between a plurality of steel plates which have been coated with a thermosetting resin coating consisting mainly of, e.g., an acrylic resin or a melamine resin, and is heated at 110~150°C for 60~120min to join the plates.

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L1: Entry 18 of 19

File: JPAB

Sep 5, 1987

DOCUMENT-IDENTIFIER: JP 62201983 A

TITLE: EPOXY RESIN ADHESIVE COMPOSITION

Abstract (2):

CONSTITUTION: 100pts.wt. oligomer containing two or more ethylene oxide groups in a molecule (A) (e.g., a bisphenol-glycidyl ether epoxy resin) is mixed with 10~50pts.wt. liquid telechelic diene rubber (B) which has terminal functional groups such as hydroxyl, carboxyl, isocyanate, ethylene oxide, or acryloyl groups, has a molecular weight of 1,000~20,000, and is liquid at ordinary temperatures, and if necessary, a filler (e.g., a silica powder), a latent curing agent (e.g., dicyandiamide), an anti-sagging agent (e.g., asbestos), etc. to give the titled composition. This composition is applied in the interspaces between a plurality of steel plates which have been coated with a thermosetting resin coating consisting mainly of, e.g., an acrylic resin or a melamine resin, and is heated at 110~150°C for 60~120min to join the plates.

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L9: Entry 3 of 12

File: USPT

Apr 11, 2000

US-PAT-NO: 6048587

DOCUMENT-IDENTIFIER: US 6048587 A

TITLE: Water-dispersible, radiation and thermally-curable polymeric compositions

DATE-ISSUED: April 11, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Estrin; Tanya	Grand Junction	CO		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ricon Resins, Inc.	Grand Junction	CO			02

APPL-NO: 9/ 164737 [PALM]

DATE FILED: October 1, 1998

INT-CL: [7] B05 D 3/06

US-CL-ISSUED: 427/496; 427/388.1, 427/389.7, 427/393.5, 526/262, 526/272, 526/286, 526/304, 526/312, 526/320

US-CL-CURRENT: 427/496; 427/388.1, 427/389.7, 427/393.5, 526/262, 526/272, 526/286, 526/304, 526/312, 526/320

FIELD-OF-SEARCH: 525/10, 427/496, 427/388.1, 427/389.7, 427/393.5, 526/262, 526/272, 526/286, 526/304, 526/312, 526/320

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>3841895</u>	October 1974	Hick	117/72
<input type="checkbox"/>	<u>3855379</u>	December 1974	Araki et al.	260/77.5CR
<input type="checkbox"/>	<u>3959554</u>	May 1976	Hick	428/336
<input type="checkbox"/>	<u>4224357</u>	September 1980	Iwai et al.	427/44
<input type="checkbox"/>	<u>5268257</u>	December 1993	Mirle et al.	430/285
<input type="checkbox"/>	<u>5691006</u>	November 1997	Salvin et al.	427/510

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
51-000534	January 1976	JPX	
58-070868	April 1983	JPX	
58-204058	November 1983	JPX	
01020216	January 1989	JPX	
01020213	January 1989	JPX	
01020215	January 1989	JPX	
02091111	September 1990	JPX	

OTHER PUBLICATIONS

Puskas, J.E., et al. (1988), "New polyisobutylene-based UV-curable flexible coatings," Polymer Bull. 20:253-260.

ART-UNIT: 172

PRIMARY-EXAMINER: Cameron; Erma

ATTY-AGENT-FIRM: Greenlee, Winner and Sullivan, P.C.

ABSTRACT:

Radiation-curable resins as well as thermal and electron-beam-curable resins are provided comprising a polymeric backbone having acrylate or vinyl ether substituents and an ionically bonded neutralizing agent such as an aminoacrylate. These resins are hydrophilic and water-dispersible before curing, but resistant to most solvents including water after curing while preserving a hard, strong, adhesive character which makes them suitable for use as coatings and fabrication of three-dimensional structures in a wide variety of applications.

20 Claims, 0 Drawing figures

WEST

Generate Collection

Print

L9: Entry 3 of 12

File: USPT

Apr 11, 2000

DOCUMENT-IDENTIFIER: US 6048587 A

TITLE: Water-dispersible, radiation and thermally-curable polymeric compositions

Brief Summary Paragraph Right (6):

Japanese Patent Publications No. 01020215 A and 01020216 A, both published Jan. 24, 1989 for "Photocurable Resin Composition" (abstracts) disclose photocurable resin compositions modified with a carboxylic acid-terminated rubber and having photo/radical-polymerizable functional groups on the molecular ends mixed with a compound having at least one dicyclopentenyl group or isobornyl group. Japanese Patent Publication No. 01020213 A published Jan. 24, 1989 for "Photocurable Resin Composition" discloses a polybutadiene resin obtained by mixing photocurable telechelic polybutadiene resin having photo/radical-polymerizable functional groups on the molecular ends with a reactive group such as phenoxypolyethylene glycol acrylate and adding a silane coupling agent. Japanese Patent Publication No. 02091111 A published Mar. 30, 1990 for "Photocurable Resin Composition" (abstract) describes a blended photocurable composition comprising a hydrogenated polybutadiene with a photopolymerization initiator and an unsaturated carboxylic acid derivative having phosphorus in the molecule.

WEST

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Print

L9: Entry 4 of 12

File: USPT

Mar 26, 1996

DOCUMENT-IDENTIFIER: US 5502107 A

TITLE: Polystyrene modified with a telechelic polyorganosiloxane

Brief Summary Paragraph Right (11):

The polydiorganosiloxane emulsion of step (I) is prepared using conventional methods. A grafting silane is then reacted with the polydiorganosiloxane in emulsion via a condensation reaction which takes place in the presence of a tin catalyst. The grafting silane replaces the silanol groups on the ends of the polydiorganosiloxane molecules to produce an emulsion of a non-crosslinked telechelic polydiorganosiloxane. A telechelic molecule is herein defined as a polydiorganosiloxane molecule with organic functional groups disposed at the polymer chain ends, which can be used to bond chemically to other types of molecules. No crosslinking occurs during formation of the telechelic polydiorganosiloxane emulsion. This is in contrast to the grafting silanes selected in the prior art, in which the three hydrolyzable groups at the silicon atom of the grafting silanes condense with silanols of other polydiorganosiloxane molecules to produce a crosslinked polyorganosiloxane, or an emulsion of silicone rubber. The non-crosslinked telechelic polyorganosiloxanes of the present invention therefore have the physical characteristics of a gum upon removal of water from the emulsion. The process of grafting the silane to the preformed aqueous emulsion polymer having a plurality of silanol-terminated polydiorganosiloxane particles is further described in U.S. patent application Ser. No. 08/268,349 titled "FUNCTIONAL POLYORGANOSILOXANE EMULSIONS FROM DIHYDROLYZABLE SILANES AND PHOTOCURABLE COMPOSITIONS THEREFROM", filed contemporaneously with this application.

WEST

Generate Collection

Print

L9: Entry 5 of 12

File: USPT

Jan 17, 1995

DOCUMENT-IDENTIFIER: US 5381735 A

TITLE: Process for printing using a photopolymeric mold made from photopolymerizable compositions with improved release properties

Brief Summary Paragraph Right (7):

Compositions of the type described by Plambeck generally are prepared from polymeric compositions which require organic solvents for removal of the unexposed portions. Due to the toxicity, high volatility, and generally low flash point of low cost organic solvents, their use often gave rise to hazardous conditions. As a result, further research was directed towards the development of photopolymerizable compositions soluble in water or aqueous alkali. For example, U.S. Pat. Nos. 3,794,494 and 3,960,572, the disclosures of which are both incorporated herein by reference, describe water or aqueous alkali dispersible compositions which are suitable when polymerized for use as rigid or elastic flexographic printing plates. These patents describe the use of unsaturated polyesters or polyester-polyether urethane-linked block polymers containing acrylate or methacrylate end groups as the photopolymerizable composition. U.S. Pat. No. 4,198,238, the disclosure of which is incorporated herein by reference, describes aqueous-based photocurable compositions for fabricating soft printing plates suitable for printing with ultraviolet-curable inks; these compositions generally include a mixture of a polyether or polyester linked by a carbamoyl (urethane) to a terminal olefinic group in combination with a low molecular weight unsaturated polyester and an ethylenically unsaturated monomer. Thus, a number of aqueous-based photocurable compositions are presently used; these systems allow the unexposed composition to be washed away with soap and water (i.e., water and suitable surfactants and/or detergents). The production of printing plates from a mixture of a photopolymerizable urethane prepolymer and an ethylenically unsaturated compound (such as vinylpyridine or acrylic acid) are described in U.S. Pat. No. 4,358,354, the disclosure of which is incorporated herein by reference. Further descriptions of photopolymer compositions for printing and other applications are contained in the following U.S. Pat. Nos. 3,989,609; 4,218,294; 4,218,299; 4,442,302; 4,837,126, and 4,849,321; the disclosures of which are all incorporated herein by reference.

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Print

L9: Entry 6 of 12

File: USPT

Dec 7, 1993

US-PAT-NO: 5268257

DOCUMENT-IDENTIFIER: US 5268257 A

TITLE: Aqueous developable, photocurable composition, and flexible, photosensitive articles made therefrom

DATE-ISSUED: December 7, 1993

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Mirle; Srinivas K.	Ellicott City	MD		
Berrier; Arthur L.	Ellicott City	MD		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
W. R. Grace & Co.-Conn.	New York	NY			02

APPL-NO: 8/ 028715 [PALM]

DATE FILED: March 9, 1993

PARENT-CASE:

This is a continuation of application Ser. No. 561,849, filed Aug. 1, 1990, now abandoned.

INT-CL: [5] G03C 1/76

US-CL-ISSUED: 430/285; 430/286, 430/287, 430/288, 430/302, 522/107

US-CL-CURRENT: 430/285.1; 430/187, 430/286.1, 430/288.1, 430/302, 522/107

FIELD-OF-SEARCH: 430/281, 430/285, 430/286, 430/287, 430/288, 430/306, 430/302, 522/107

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>3546184</u>	December 1970	Heidel et al.	260/78.4
<input type="checkbox"/>	<u>3766215</u>	October 1973	Hesse et al.	260/346.8
<input type="checkbox"/>	<u>3974129</u>	August 1976	De La Mare	204/159.24
<input type="checkbox"/>	<u>4023973</u>	May 1977	Imaizumi et al.	96/115R
<input type="checkbox"/>	<u>4038084</u>	July 1977	Nakano et al.	96/115P
<input type="checkbox"/>	<u>4045231</u>	August 1977	Toda et al.	96/115P
<input type="checkbox"/>	<u>4162240</u>	July 1979	Hino et al.	260/29.7B
<input type="checkbox"/>	<u>4192684</u>	March 1980	Gensho et al.	430/284
<input type="checkbox"/>	<u>4275142</u>	June 1981	Hosaka et al.	430/271
<input type="checkbox"/>	<u>4399211</u>	August 1983	Kondo et al.	430/269
<input type="checkbox"/>	<u>4442302</u>	April 1984	Pohl	204/159.23
<input type="checkbox"/>	<u>4722947</u>	February 1988	Thanawalla et al.	522/120
<input type="checkbox"/>	<u>4762892</u>	August 1988	Koch et al.	525/279
<input type="checkbox"/>	<u>4857434</u>	August 1989	Klinger	430/286
<input type="checkbox"/>	<u>4916045</u>	April 1990	Koch et al.	430/270
<input type="checkbox"/>	<u>5102773</u>	April 1992	Littmann et al.	430/285 X

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
50-73944	June 1975	JPX	
51-37128	March 1976	JPX	
52-81396	July 1977	JPX	
54-129044	October 1979	JPX	
5723693	May 1987	JPX	
1598894	September 1981	GBX	

OTHER PUBLICATIONS

Calvin F. Schildknecht, Vinyl and Related Polymers: Their Preparations, Properties, and Applications in Rubbers, Plastics, Fibers and in Medical and Industrial Arts, John Wiley & Sons, Inc., New York, N.Y., 1952, pp. 244-249.

ART-UNIT: 157

PRIMARY-EXAMINER: Brammer; Jack P.

ATTY-AGENT-FIRM: Looper; Valerie E.

ABSTRACT:

A photocurable composition P(Y) (Y.sub.1) (Y.sub.2) is prepared by reacting a solid carboxylated copolymer P(Y) having at least one pendent carboxyl group Y, and optionally one or more terminal carboxyl groups Y, with (i) a photosensitive vinyl-containing compound, e.g. glycidyl (meth)acrylate, which produces Y.sub.1 and optionally, with (ii) an anhydride, e.g. maleic anhydride, to produce Y.sub.2. Y.sub.1 has free vinyl groups and Y.sub.2 has free vinyl and acid groups. In addition, P(Y) can be a liquid carboxylated copolymer which is chain extended in order to prepare a solid. Either of the resulting photocurable compositions can be used "as is" or can be formulated with vinyl containing monomers and photoinitiators to prepare solid, flexible photosensitive articles, e.g. flexographic printing plates, which are water dispersible, and yet possess acceptable mechanical properties for flexographic

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L9: Entry 6 of 12

File: USPT

Dec 7, 1993

DOCUMENT-IDENTIFIER: US 5268257 A

TITLE: Aqueous developable, photocurable composition, and flexible, photosensitive articles made therefrom

Detailed Description Paragraph Right (14):

When the photocurable composition has been reacted with a (meth)acrylate, the above maleation reaction creates a side chain on Y.sub.1 to transform structure Y.sub.1 into a pendent or terminal group Y.sub.2 having the structure: ##STR7## wherein R.sub.1 and R.sub.2 are individually a member of the group consisting of hydrogen, halogen, carboxyl, linear or cyclic alkyl containing 1-20 carbon atoms, aryl, alkaryl and aralkyl containing 6 to 20 carbon atoms; R.sub.3 is hydrogen or methyl; and n is 1 to 6. The maleation reaction is carried out at a temperature in the range 60.degree.-120.degree. C. for periods ranging from 4-12 hours. The reaction is preferably carried out in the presence of a thermal inhibitor, such as di-t-butyl cresol, and in inert solvents such as a toluene, benzene, chloroform, methylene chloride, tetrahydrofuran, acetone and ethyl acetate. Although no catalysts are necessary, catalytic amounts of acids or Lewis acids such as phosphoric acid and stannous octoate can be employed.

Detailed Description Paragraph Right (15):

As illustrated by the preferred embodiment for Y.sub.2, the pendent or terminal group Y.sub.2 has two significant characteristics. Y.sub.2 has a free photosensitive vinyl group which serves as a photopolymerizable group. Second, maleation of the hydroxyl group on Y.sub.1 provides carboxylic acid groups on Y.sub.2, thereby creating a pendent or terminal group having improved dispersability in aqueous media, e.g. aqueous developing baths used to remove unexposed areas of photocurable composition after a photopolymerization process.

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L9: Entry 8 of 12

File: USPT

Apr 19, 1988

US-PAT-NO: 4738870

DOCUMENT-IDENTIFIER: US 4738870 A

TITLE: Adherent photopolymerizable compositions

DATE-ISSUED: April 19, 1988

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Green; John G.	Baton Rouge	LA		
McEwen; Gerald K.	Midland	MI		
Hunt; David G.	Baton Rouge	LA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
The Dow Chemical Company	Midland	MI			02

DISCLAIMER DATE: 20040414

APPL-NO: 6/ 845292 [PALM]

DATE FILED: March 27, 1986

INT-CL: [4] C08F 2/50, C08F 30/02

US-CL-ISSUED: 427/54.1; 522/44, 522/96, 522/103, 522/167, 522/171, 522/181, 526/278

US-CL-CURRENT: 427/518; 427/519, 522/103, 522/167, 522/171, 522/181, 522/44, 522/96, 526/278

FIELD-OF-SEARCH: 522/171, 522/44, 522/96, 522/103, 522/167, 522/181, 525/287, 560/222, 526/278, 427/54.1

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>2439214</u>	April 1948	Lindsey, Jr.	526/278
<input type="checkbox"/>	<u>2586885</u>	February 1952	Fon Toy	526/156
<input type="checkbox"/>	<u>2818362</u>	December 1957	Drechsel	524/34
<input type="checkbox"/>	<u>2919279</u>	December 1959	Walles et al.	526/260
<input type="checkbox"/>	<u>3417054</u>	December 1968	Merijian et al.	526/260
<input type="checkbox"/>	<u>3437514</u>	April 1969	Burlant	522/99
<input type="checkbox"/>	<u>3468982</u>	September 1969	Klein et al.	526/278
<input type="checkbox"/>	<u>3684779</u>	August 1972	Rapko	526/271
<input type="checkbox"/>	<u>3855364</u>	December 1974	Steckler	526/277
<input type="checkbox"/>	<u>3867351</u>	February 1975	Juna et al.	522/171
<input type="checkbox"/>	<u>3874906</u>	April 1975	Prucnal et al.	525/38
<input type="checkbox"/>	<u>3879498</u>	April 1975	Illiopulos	526/278
<input type="checkbox"/>	<u>3957918</u>	May 1976	Dickie et al.	522/115
<input type="checkbox"/>	<u>3987127</u>	October 1976	Dickie et al.	522/115
<input type="checkbox"/>	<u>4052279</u>	October 1977	Lyons	522/76
<input type="checkbox"/>	<u>4059721</u>	November 1977	Rosenkranz	560/205
<input type="checkbox"/>	<u>4129710</u>	December 1978	Jin	521/137
<input type="checkbox"/>	<u>4195103</u>	March 1980	Chang	522/96
<input type="checkbox"/>	<u>4252888</u>	February 1981	Rohloff	522/181
<input type="checkbox"/>	<u>4348427</u>	September 1982	Priola et al.	522/107
<input type="checkbox"/>	<u>4438190</u>	March 1984	Ishimaru et al.	522/115
<input type="checkbox"/>	<u>4446028</u>	May 1984	Becker	252/181
<input type="checkbox"/>	<u>4446046</u>	May 1984	Becker	252/82
<input type="checkbox"/>	<u>4506057</u>	March 1985	Greene et al.	524/461
<input type="checkbox"/>	<u>4511732</u>	April 1985	Hicks	522/100

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FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
2411738	September 1975	DEX	
2535640	February 1977	DEX	
2614874	October 1977	DEX	
2918161	November 1980	DEX	
3001894	July 1981	DEX	
2449446	July 1982	DEX	
59-15468	January 1984	JPX	
1499783	February 1978	GBX	
2089807	June 1982	GBX	

ART-UNIT: 151

PRIMARY-EXAMINER: Bleutge; John C.

ASSISTANT-EXAMINER: Woodward; David W.

ABSTRACT:

A highly adherent photopolymerizable composition comprises a (hydroxy)phosphinylalkyl monomer of the formula ##STR1## wherein R is hydrogen, methyl or ethyl and R' and R" are selected independently from hydrogen and alkyl of 1-10 carbon atoms; at least one copolymerizable ethylenically unsaturated monomer and a photoinitiator.

34 Claims, 0 Drawing figures

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L9: Entry 8 of 12

File: USPT

Apr 19, 1988

DOCUMENT-IDENTIFIER: US 4738870 A

TITLE: Adherent photopolymerizable compositions

Brief Summary Paragraph Right (4):

The prior art has proposed a variety of photocurable compositions, intended for application to metallic substrates. These compositions usually contain a material known as an oligomer, which is generally a diethylenically unsaturated prepolymer, in which the terminal functional groups of a difunctional compound are reacted or "capped" with a polymerizable function. Oligomers can also be trifunctional and have three reactive end groups. The photopolymerizable compositions of the prior art normally also contain a diluent, which may copolymerize with the oligomer. In addition, the prior art photocurable compositions contain one or more photoinitiators, which catalyze the desired photopolymerization upon exposure to actinic radiation.